

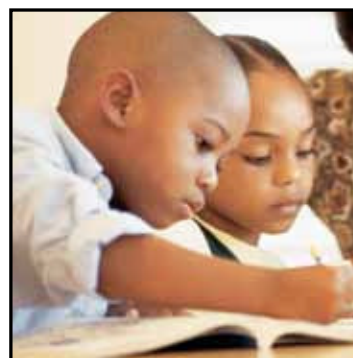


Policy Analysis for California Education
Center for Cities and Schools

2009

Smart Schools, Smart Growth

Investing in Education Facilities and Stronger Communities



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SMART SCHOOLS, SMART GROWTH
Investing in Education Facilities and Stronger Communities

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Policy Analysis for California Education (PACE) is an independent, non-partisan research center based at the University of California – Berkeley, the University of Southern California, and Stanford University. PACE seeks to define and sustain a long-term strategy for comprehensive policy reform and continuous improvement in performance at all levels of California’s education system, from early childhood to post-secondary education and training. PACE bridges the gap between research and policy, working with scholars from California’s leading universities and with state and local policymakers to increase the impact of academic research on educational policy in California.

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EXECUTIVE SUMMARY – BUILDING SCHOOLS MINDFULLY

California is midway through one of the grandest public infrastructure projects ever attempted. Over the coming decade school officials will complete an \$82 billion effort, building new schools and renovating old facilities, supported by taxpayers and private investors. But are state officials and local planners building schools mindfully to advance educational quality and lift local communities?

After committing one-third of these revenues, students and teachers are feeling robust benefits across the state: fewer pupils are crammed into overcrowded schools; smaller high schools are nurturing stronger relationships between teachers and students; and energy-efficient green schools are sprouting, yielding savings for taxpayers.

But state policies governing school construction are contributing to some unintended side effects.

- Until recently, state leaders have inadvertently underwritten suburban sprawl by rewarding suburban districts that quickly secure sites for new schools and then win large construction allocations. The Godinez case helped to shift the balance toward stronger financing in urban centers and close-in suburbs. But the state may miss a ripe opportunity to advance smart growth principles by continuing to favor rapidly growing suburban areas while failing to build from existing assets in urban neighborhoods.
- The State Allocation Board, overseeing the distribution of facilities revenues, does not publish a report analyzing the types of districts and communities that benefit most from its distribution of billions of dollars in public and private dollars. It remains difficult to track which California communities benefit from this huge and ongoing public investment.
- Little is known about how facility improvements or new forms of schooling may boost teacher motivation, effective instruction, or achievement. Education interest groups – including forceful advocates of charter schools, preschools, smaller class sizes – have succeeded in winning set-asides in recent facility bond initiatives. They have shown less enthusiasm for independent studies of the actual effects of their reforms.
- State policy makers, education leaders, and city planners should come together to: (1) clarify how facility investments can help to attract and retain families in cities and close-in suburbs; (2) remove incentives for unrestrained sprawl; and (3) determine which facility improvements are raising teacher effectiveness and student achievement, as well as enriching local communities.

California can target its \$82 billion investment more mindfully to build and renovate schools in ways that raise educational quality and the sustainability of regional economies. Or, the state can squander this historic opportunity, stifling inventive forms of schooling and reinforcing the state's centrifugal, unsustainable sprawl. That would be one of California's greatest missed opportunities.

Schools are centers of social activity in many communities. They can attract new middle-class families, or convince them to leave for suburban outreaches. This report contributes to a new conversation around how careful school construction can enrich metropolitan areas and sustainable forms of regional development.

I. California's \$82 Billion Opportunity

The sudden flow of bond revenues pleased this suburban school chief. He could now lead the charge, building new schools to keep pace with the housing tracts that were sprouting across his district. Sure, young parents – leaving behind high Bay Area housing prices and mediocre schools – would now commute for hours on clogged freeways, trading up housing for painful transportation costs. But the boomlet created in this far-out hamlet cheered local educators.

Still, this superintendent faced a short-lived problem. He couldn't afford a full-time architect or planner. So, an eager land developer obliged by arriving one day with elegant plans for the initial new school, to be placed adjacent to the developer's model homes. The partnership saved the school board thousands of dollars in design costs and offered the developer a powerful marketing device for prospective buyers. One southern California developer tells a similar story, off the record, of how "we just give the land to school districts" to speed construction of new schools, a powerful magnet for parents searching for a new home.

Meanwhile, back in the cities, as in San Francisco, school boards are busy consolidating or closing down schools. This city's school-aged child population has shrunk by one-sixth over the past decade, with many middle class parents sending their children to private schools or heading to the East Bay and farther east to escape unaffordable home prices and uneven public schools.¹ The loss of middle class families with school-aged children is seen elsewhere. Los Angeles now has the smallest middle class proportionally among the nation's hundred largest cities.²

The state's enrollment patterns vary markedly by region. School enrollment in the Los Angeles Unified School District (LAUSD) peaked at 747,000 students in 2002, and has drifted downward since. Conversely, the *third California* – running from the Inland Empire, up the Central Valley to Sacramento County – has grown four times faster than L.A. or

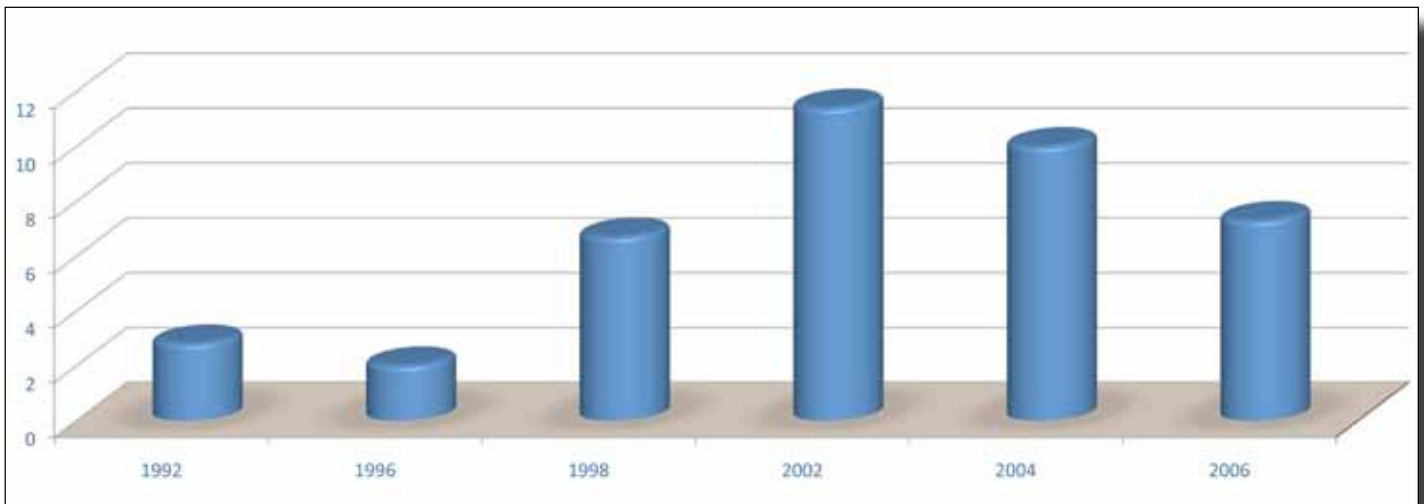
the Bay Area, and is now home to almost one-third of the state's population.³ School enrollments in this inland swath are projected to greatly increase as California families with children leave behind the high-priced urban centers. The current slow-down in housing markets will slow, but not stop, this secular trend.

Some argue that funneling billions of dollars for school construction to far-out suburbs is rational: public dollars are simply following out-migrating families. Yet it's like investing in freeways: by subsidizing suburban sprawl, government and private investors are expanding metropolitan fringes and economic forms that are less sustainable in the long run. And in the short run, this centrifugal development adds to everyday traffic congestion, pollution, and the loss of agricultural land. That rapid construction of new schools on the suburban fringe may work against the sustainability of regional economies and the quality of life.⁴ By focusing public investment on urban centers and close-in suburbs, public school quality could rise and middle-class families would remain. We know that middle-income parents move to communities that are safe and sport good schools. Just look at all the test score data that fills the flyers of real estate agents.

We discuss how – after losing the school overcrowding case in 2000 – California's State Allocation Board (SAB) has distributed billions of dollars in bond revenues in a more equitable manner, making strides in reducing the incentives for suburban sprawl. Yet significant disparities persist in the funding of new schools and the modernization of old schools.⁵

Nearly every two years since 1996, California's voters have approved statewide school construction bonds totaling more than \$35 billion between 1998 and 2007.⁶ When local bond measures are added-in, voters have authorized the sale of \$82 billion in revenue bonds to pay for new and improved school facilities since 1996. School districts are midway through spending these dollars on building new schools and renovating aging facilities (Figure 1).

Figure 1. Statewide school bond measures in billions of dollars approved by California voters, 1992-2006, excluding local district bonds



Additional details: <http://www.cde.ca.gov/lr/fa/sf/facts.asp>

Whether the ongoing suburbanization of California is seen as pallid sprawl or key to the American Dream depends on who you ask. But many would agree that we should reinvest in communities that provide rich amenities and support efficient energy consumption. As an enormous public investment, school construction plays an important role in contributing to California's future prosperity. This report examines how the state's massive and ongoing investment in school construction could better advance the shared goals of school improvement, sustainable urban growth, and equal opportunity. The brief is organized in five parts:

- First, we sketch a *framework* for how smart growth principles could help guide school facilities investments. This includes not only the bricks and mortar of infrastructure but also the creation of more effective forms of schooling, such as small, human-scale schools which are better integrated with their communities.
- Second, the widening *scope of school construction and renovation* is described. We outline how these \$82 billion in bond revenues are being distributed to California's various regions.
- Third, the lack of coordinated planning is placed in sharp relief, once we illuminate *demographic and economic shifts* that shape quality of life in California, from where we live to how far we travel to jobs.
- Fourth, we detail what's known empirically about the *benefits of high-quality school facilities* that accrue to students and teachers. Smarter forms of schooling, in carefully designed facilities, could spur stronger engagement and motivation among children and educators alike.

- Finally, we argue that state policy makers, local educators, and city planners face key *decision points*, and they could exercise these influential *policy levers* more wisely. We highlight four communities that are grappling with these challenges in innovative ways and constructing smart schools that build from smart growth principles. These cases appear in boxes throughout this report.

II. Building Schools, Advancing Sustainable Communities

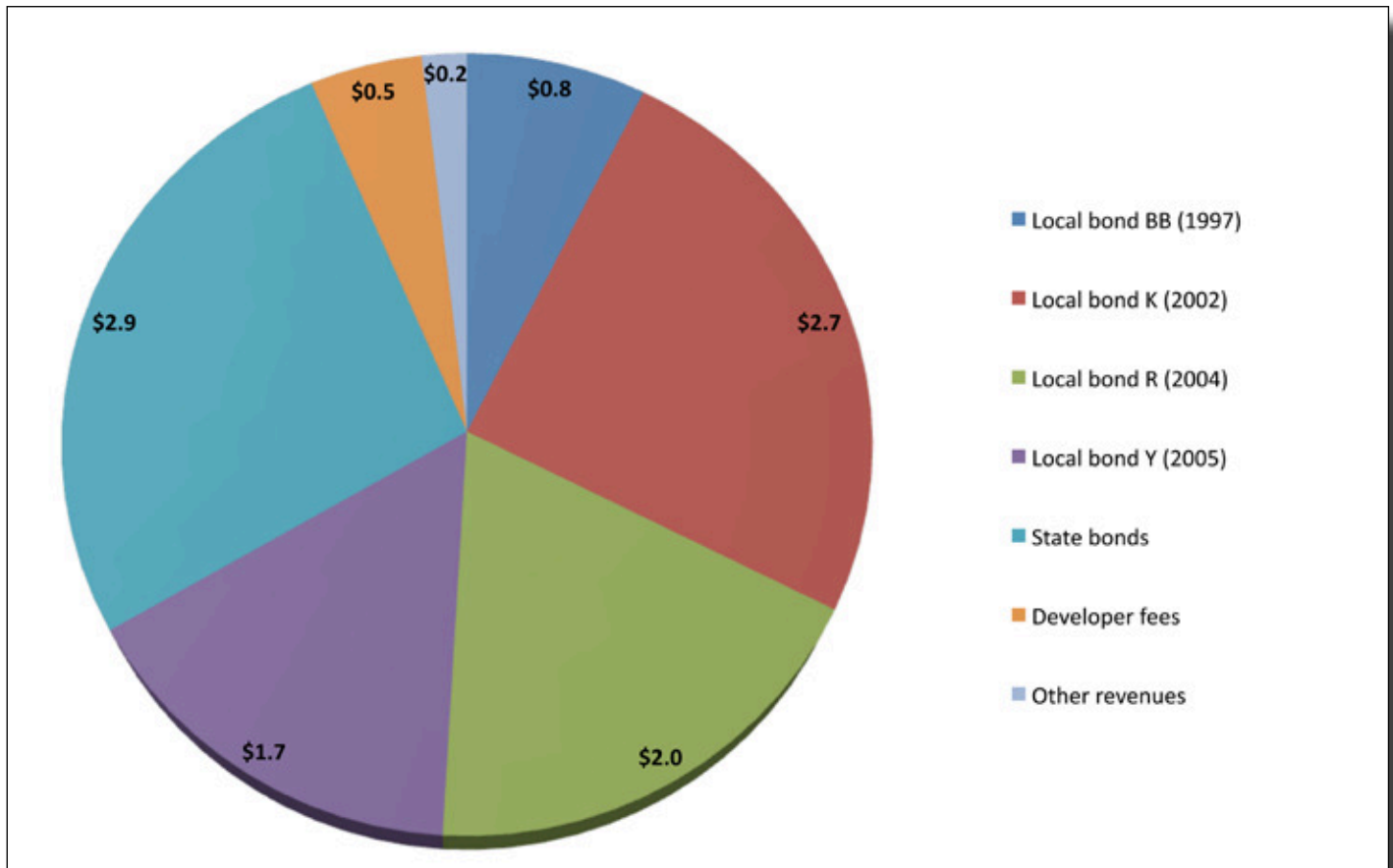
Demand for school construction continues to be driven by enrollment growth in outer-ring suburbs, and more recently from urban districts that are confronting severe overcrowding or seek to modernize decrepit facilities. Urban centers are beginning to benefit from the state's more equitable allocation of facilities dollars in the wake of a settlement in the *Godinez v. Davis* overcrowding case, detailed below. This increased sense of fairness structured into the state's School Facility Program (SFP) is helping to finance new schools that serve low- and middle-income families in cities and inner-ring suburbs.

The largest local effort to relieve overcrowded schools and renovate an ancient stock of schools is unfolding in Los Angeles – a district that had not built a school in decades is now able to invest more than \$19 billion, buoyed by a series of voter-approved bonds. More than half of this revenue is going to build new schools, while the remaining portion is allocated for renovating existing schools (Figure 2).

LAUSD's school facility team displays a strong dose of creativity into their planning, building two-story schools to utilize urban space more effectively, incorporating green design principles through a variety of energy efficiency measures, and planning for shared use of school facilities and outdoor recreational spaces. These inventive design features complement the school board's policy aims of relieving overcrowded facilities and classrooms, eliminating involuntary bussing, and creating small high schools. Still, critics argue that some schools remaining too big and impersonal, or rarely offer open and inviting designs, missing the opportunity to help transform gray urban blocks.

In Sacramento, the statewide allocation process is changing incrementally. Until quite recently the SAB simply handed out school construction dollars on a first-come, first-served basis. This practice benefitted rapidly growing suburban districts, who benefit from less expensive land, local funding and developer fees, and aggressive builders who even draft applications for local school districts. Previously, land had to be purchased before an application could be made to the SAB, which put urban districts, who had to find affordable land and secure funding in advance, at a severe disadvantage. Finding 20 acres, for example, in existing communities is no easy task. State statutes and regulations continue to encourage construction of single-story, "big box" schools with a variety of acreage and square-footage recommendations. These antiquated requirements reward

Figure 2. The Los Angeles Unified School District will invest up to \$26.8 billion by 2015 to build new and renovate existing schools –reducing over crowding, involuntary bussing, shortened school years. Recent plans call for additional preschools, lower class sizes, and breaking-up big high schools into small learning communities. This graphs shows the distribution of bond revenues for new school construction (prior to Measure Q on the November 2008 ballot)



Additional details: LAUSD (2007). New construction strategic execution plan. Los Angeles: Facilities Services Division.

school districts and developers in the outer suburbs and discourage more inventive designs for more densely populated areas. The SAB and local school boards rarely work with city planners to ask how construction plans will contribute to community development priorities. And because the allocation of facilities funding is demand driven, regional planning and incentives for sprawl are rarely discussed.

So, how might educators and city planners come together to improve local communities and make regions within California more sustainable – economically and environmentally? Let's first turn to the basic principles of sustainability and smart growth, and then examine how they relate to school construction. Consider these basic elements of sustainability:

1. *Ensuring that three E's are pursued – environment, economy, and equity.* Regional sustainability might be described as a three-legged stool, where public institutions contribute to environmental soundness, economic efficiency, and the equitable

distribution of resources. Schools, the most expansive and costly public institution supported by state and local governments, can play a role in advancing sustainability across the three E's.

2. *Conserving land and energy resources.* Many question whether the rapid growth of low-density suburbs, far from urban centers, is a sustainable pattern. The outward migration into ever-expanding housing tracts witnessed since the late 1940s has absorbed farm land and greenbelt areas, limited open space, and resulted in severe traffic congestion in many parts of the state. The outward extension of public infrastructure, from schools to freeways to sewers, effectively subsidizes sprawl. One way to reduce these costs is to invest in more densely populated communities, areas served by existing infrastructure and institutions, like schools.
3. *Renewing attractive, culturally rich communities.* California localities are working hard to create revitalized, vibrant neighborhoods. Examples include Oakland's Fruitvale neighborhood and the new transit hub, Fruitvale Village, complete with retail businesses, mixed-income housing, and a nearby new elementary school. San Diego's City Heights Urban Village is a pedestrian-friendly town square surrounded by retail shops and educational facilities that are nestled in an existing neighborhood. Designing walk-able public spaces and providing options for affordable housing and transportation connections is key to revitalizing California's older neighborhoods. Educational institutions – from childcare centers to high schools – are important components, providing anchors for young families and serving as attractive public places.
4. *Planning democratically, thinking regionally.* Sustainability of effective schools and local economies will require participatory planning. Civic leaders, school board members, employers, and parents all hold a stake in raising the quality of public schools, and strengthening the social fabric of their neighborhoods through more supportive schools. Yet the design of new and renovated schools often occurs behind closed doors with little consultation. State leaders do incent joint-use projects in which school designers work with municipal partners to build schools linked to community-accessible libraries, gymnasiums, and soccer fields. These are promising strategies, but remain the exception rather than the norm. Smaller schools and charter schools are being sited adjacent to transit stations, affordable housing, and office buildings.

Implications for educators. So, how might local educators place their institutions at the center of robust communities, and build from smart growth principles? *Building schools near existing infrastructure*, whether in urban centers or outlying suburbs, helps to make

neighborhoods more attractive and encourages children and families to walk or bicycle to school. LAUSD and other school districts are actively enhancing neighborhood amenities by expanding green spaces, play fields, and shared recreation centers. LAUSD, for instance, is bringing these amenities into neighborhoods that have lacked them for decades. And their new two-story schools demonstrate how schools can be built on smaller footprints, and green school designs are reducing energy costs.

The *educational content* of schools can become more integrated with local communities. Students might learn about the economic and environmental challenges facing their surrounding region, or how their neighborhood compares to others nearby. High school students can be encouraged to enter internships or service-learning opportunities in local firms or nonprofits. Many charter and magnet schools already encourage adolescents to take-on responsible service roles, nurturing a sense of belonging, of making a contribution to one's community.

Educators well understand the force of parents who seek out better schools, and how school choice is tempered by housing prices, job proximity, and neighborhood histories. School boards across California struggle to hold onto middle-class families while not depleting schools in low-income communities of strong teachers and adequate resources. In Oakland, for example, debates pivot on disparities between the higher income "hill schools" and the lower income "flatland schools." A similar contrast is drawn in Los Angeles between better-off schools on the Westside, versus resources going to the low-income southeast cities. The lessons offered by school leaders could enrich city planning, especially in crafting communities – and in turn, schools – that are culturally vibrant and integrated along class and racial lines.

A smart growth framework can spark new thinking about the role of schools – and school construction investment – in strengthening the economic viability, cultural variety, and opportunities situated in urban centers and close-in suburbs. But market forces, weak policy priorities, and competing interests can work against this long-term perspective. How can we tame and redirect these interests, harnessing facilities investments to advance economic and institutional sustainability? Let's back up and examine the demographic, economic, and political forces at play.

III. Remaking California's Schools?

California has experienced periods of boom or bust in school construction over the past half century. What's curious is how the ups and downs of bond revenues have rarely been in synch with the governor's or legislature's capacity to fund the operating costs of local schools. A structural deficit in the state's general fund is now slowing recurrent spending on the programmatic side of local schools. Meanwhile, many districts are flush

with construction bond revenues, steadily approved by voters over the past decade. At the very moment that innovative districts like LAUSD are investing in facilities reforms – small learning communities, new magnet schools, and renovating charter schools – they are faced with sharp cuts in operating revenues. But the opportunity remains to build schools that offer inventive new pedagogies and energize local economies.

The golden age is now. The time to build schools differently is now. Figure 3 places the current picture in historical perspective. California's public infrastructure expanded dramatically in the post-war period, in large part to keep pace with the booming birth rate and first-generation suburban growth, as families sought to escape urban "ills" and find housing in the suburbs. Voters approved five state school construction bonds between 1949 and 1960, yielding just under \$6 billion in revenues (inflation-adjusted 2005 dollars). By the 1961 fiscal year, California was spending about \$840 per student in new school construction or renovation projects annually (Figure 3).⁸

Yet the most recent decade, 1996-2006, dwarfs the post-war golden age of public infrastructure development. Voters approved five *state* bond issues, providing districts nearly \$37.5 billion for infrastructure projects. During this time, California voters also approved 567 *local* bonds, awarding local districts the authority to sell an additional \$44.5 billion in facilities bonds. The State of California has a relatively long history of funding local school construction, beginning in 1933. Prior to this, Sacramento provided land grants to school districts, but not tax or bond revenues. After the devastating 1933 Long Beach earthquake, the Field Act was passed, setting structural engineering standards for schools. Only then did state school construction bond measures appear, especially following World War II. Facilities spending from state and local sources then tailed-off in the 1960s, as seen in Figure 3, as a declining number of students inhabited ageing schools. The 1971 San Fernando earthquake would again spur legislative action to require districts to meet Field Act standards and prompt two successful state bond measures.⁹

The real jolt proved to be Proposition 13, the property tax relief measure approved by California voters in 1978, which dramatically slowed growth in recurrent school spending. Prop. 13 also prohibited local property tax overrides to help fund general obligation bonds. This instantly shifted responsibility for infrastructure financing from local school districts to the state. Yet enrollments were again on the rise in urban centers and outer-ring suburban areas, including the north county area of San Diego, Santa Clara County, and the Sacramento metropolitan area. Voters responded by passing two state school construction bonds in the early 1980s. Proposition 46 was approved in 1986, giving back to voters the ability to consider local bond measures, reversing this one element of Prop. 13. The state legislature also awarded to districts the ability to establish user fees, placed on private land developers to share the cost of building new schools.

Case 1: Orthopaedic Hospital Magnet High School – Los Angeles

Located in South Los Angeles, Orthopaedic Hospital Medical Magnet High School (OHS) offers a science-based, medical curriculum. The Los Angeles Unified School District (LAUSD) developed OHS in partnership with Orthopaedic Hospital, a private hospital adjacent to the school campus. OHS maintains a special commitment both to serving children with orthopaedic disorders and, in the spirit of equity, encouraging youth in South Los Angeles, who are often underrepresented in the medical field.

The school opened in 2004, and currently serves a student population that is 70 percent Hispanic and 20 percent African American. Funding for OHS programs is secured through district funds and by the hospital's own foundation.

The hospital partnership began with the signing of a joint-use agreement, which stipulated the donation of land by the hospital to the schools. Since the initial development of the school, a portion of the land has been sold, hence invalidating the formal agreement. However, through an ongoing commitment hospital staff continue to have a great deal of influence on school curriculum and programming.

Design and curriculum. The OHS campus sits on four acres and includes 32 classrooms, a library, food service, cafeteria, science labs and administration offices. The facility design incorporates multi-story buildings on an infill site. Future plans include the development of a video-conferencing facility, which will allow students to listen to lectures given by physicians, observe medical procedures remotely, and engage in dialogue with medical professionals. OHS students can also use hospital facilities to gain hands-on sports therapy experience and attend lectures given by hospital staff.

School-community connection. The school maintains strong curricular connections for students to the hospital community through a number of programs:

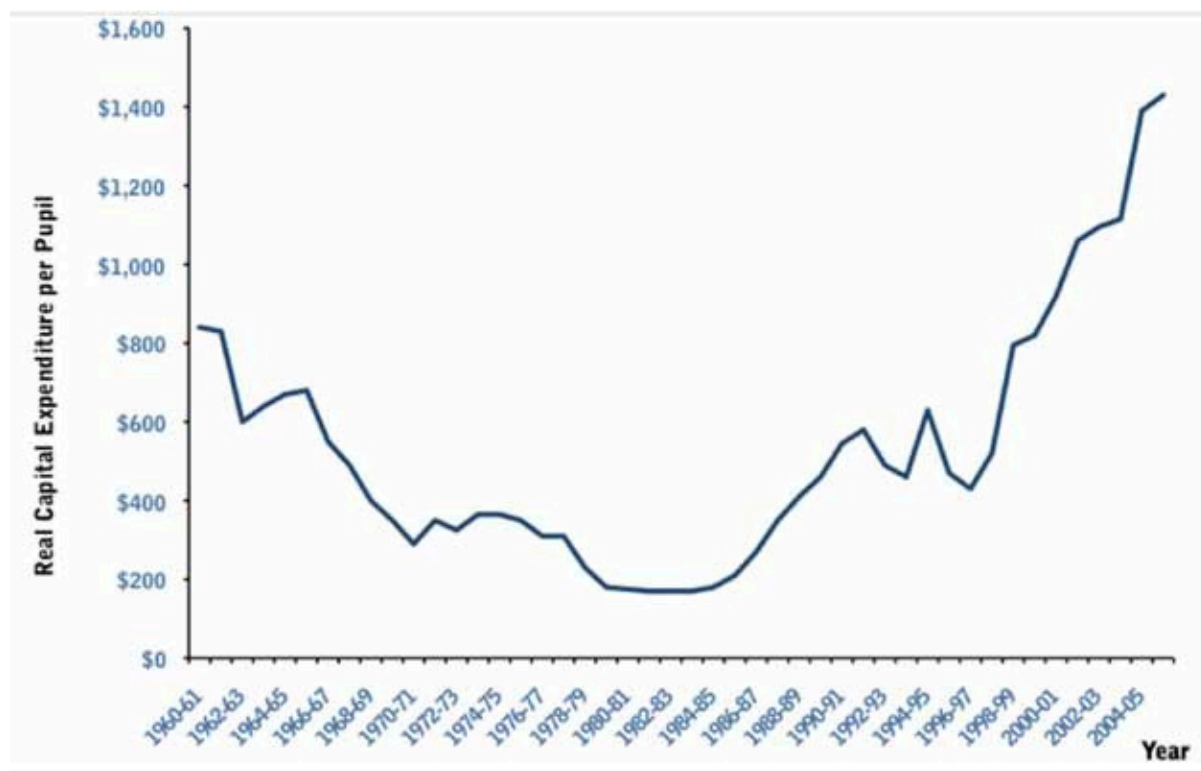
- Working alongside hospital researchers to design a playground for disabled children, then helping to run as part of the outpatient clinic.
- Participating as interns working with medical staff and clients.
- Benefiting from college scholarships for OHS graduates. Some enter a community college nursing program that's also supported by the hospital.
- Attending hospital-sponsored field trips to Calexico, where they assist young children in Mexico who need medical treatment.
- Enrolling in a nursing program at the local junior college; through which they will graduate with both a high school diploma and associate of arts degree in nursing.

Faced with overcrowded and ageing schools, California voters began to pass state and local bonds with increasing frequency after 1986. Yet, the State Allocation Board (SAB) had difficulty in the 1990s keeping pace with the rising count of financing requests from local districts. Because the SAB rewarded suburban districts that could easily secure land, urban districts with few new homes being built were at a disadvantage in tapping state dollars, even as their enrollments climbed. Many urban and older suburban districts were forced to move to year-round and multi-track schedules to cope with overcrowding. The estimated cost of projects in the allocation board's queue reached \$6 billion by 1996. A federal study released the same year named California home to the most dilapidated schools in the nation.¹⁰ Nearly half of all California schools had one or more inadequate buildings (compared to 33 percent nationally) and the vast majority (87 percent) was in need of upgrade or repair. In 1997 the priority system for awarding state school construction dollars was replaced by a first-come-first-served procedure.

The interplay between facilities needs and program spending was punctuated when Gov. Pete Wilson pressed forward with an ambitious class-size reduction program, leading to the distribution of more than 85,000 portable classrooms statewide by 1998. A 2002 study found alarming conditions in many portable (and regular) classrooms throughout the state; three-fifths of teachers in portables had switched off air-conditioners in order to simply hear students; one-fifth of portables (and one-third of regular classrooms) had leaky roofs, mold inside walls, and thick dust containing harmful pesticides.¹¹

These findings – the result of years of neglect – spurred California voters to support school

Figure 3. Per student spending on California school facilities, 1960-2005 (inflation-adjusted 2005 dollars)



Data compiled by Brunner (2006).

construction and modernization bonds, approving \$82 billion in state and local measures between 1996 and 2006. They also lowered the vote (in 2000) required to approve local facility bonds from two-thirds to 55 percent, making raising local school construction and modernization funds easier to raise. About one-third of local bonds approved since then won approval by less than a two-thirds majority.

But California is still catching up with the ongoing demand for new and modernized classrooms. Other states have experienced a more steady investment approach. Between 1988 and 1992, for instance, California spent just \$495 (2005 dollars) per pupil on school infrastructure, compared with Florida, which spent \$1,076 per pupil, or Washington state, which spent \$1,267. Fast forward to the 2001-2004 period, and California spent \$1,364 per pupil, essentially keeping pace with Florida at \$1,371 and Washington at \$1,253 per student.

Which communities benefit most? Urban school districts, by the late 1990s, were increasingly concerned that SAB procedures were favoring suburban districts. Even though the Board is allocating hundreds of millions of public dollars each month, it still fails to publish a report analyzing the types of districts and communities that benefit most from its distribution of bond revenues for new or renovated schools. Taxpayers, policy makers, and private investors have no data on which to judge resulting patterns of equity or inequity, who gains and who loses from this massive allocation process.

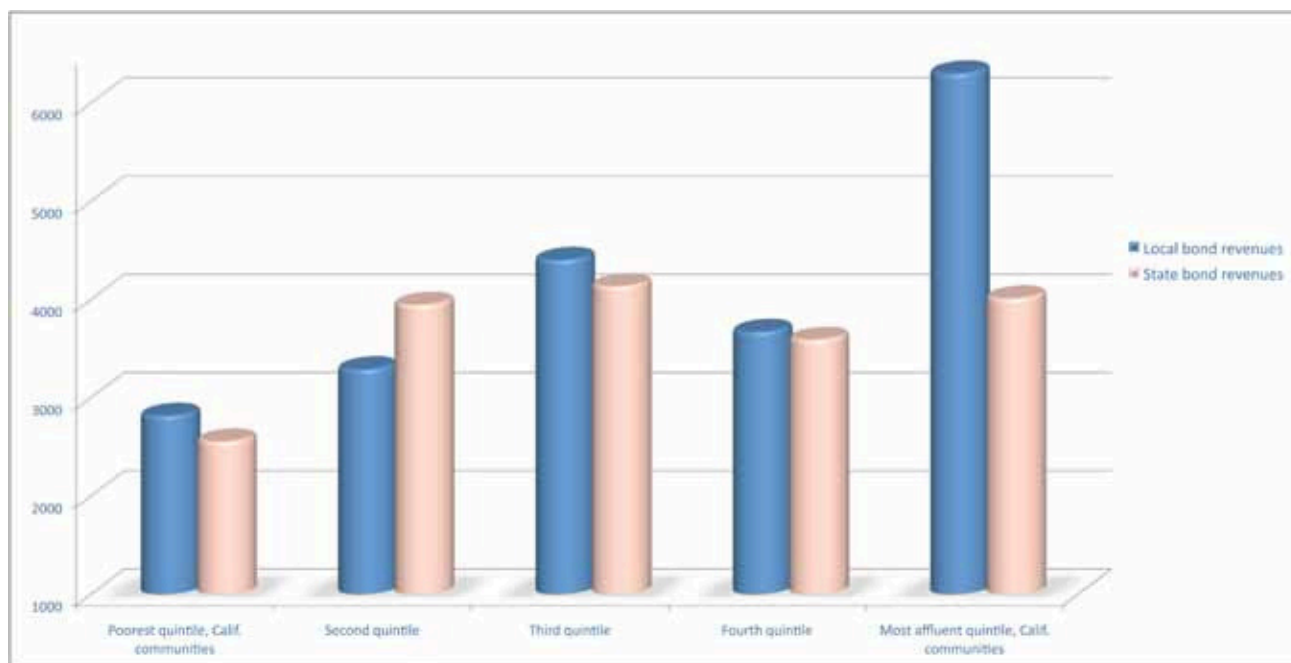
After their painstaking analysis of state allocations, the Advancement Project in Los Angeles successfully litigated the *Godinez v. Davis* case in 2000, which resulted in the court ordering the SAB to address the balance of apportionments mandated by the legislature in 1999. The decision found that urban districts were disadvantaged under the SAB's procedures, given that these schools suffered from years of neglect and overcrowding. The court said that districts need not have completed architectural designs and acquired the land for new schools before applying for bond dollars, which they previously had to do, further disadvantaging them in receiving state funding. In 2002 the legislature created the Critically Overcrowded Schools Program (COS); voters statewide would approve three new bond measures between 2002 and 2006 to relieve overcrowding and to eliminate year-round or multi-track academic schedules in Los Angeles and other urban centers. Joint-use projects were also funded by these bonds, encouraging districts to partner with other public agencies and nonprofits to collaboratively build and renovate schools that incorporated community use elements.

A second case, *Williams v. State of California* settled by Gov. Schwarzenegger in 2004, required the state to establish minimal facility quality and hygiene standards, along with periodic inspections of schools. In preparing their case, an American Civil Liberties Union study found that urban students attended the most dilapidated facilities. Further, these crumbling buildings were among the top reasons given by teachers who had exited an urban school.¹³

Little data for decision making. Despite the state's recurring legal troubles, transparent data remain scarce on the kinds of communities that benefit most from infrastructure investments. One recent tabulation of districts receiving bond revenues between 1998 and 2006 shows persisting disparities across California's communities.¹⁴ In the study, economist Eric Brunner matched districts receiving bond revenues to census data to illuminate the attributes of local beneficiaries. Figure 4 shows per pupil facility revenues flowing to unified school districts, split into quintiles defined by the median household income. For example, the vertical bars on the far left show that *local* general obligation bonds yielded \$2,816 per student in the poorest fifth of California communities, compared with \$6,300 per pupil in the richest fifth (far right). This disparity was smaller, yet still significant, when looking at per pupil revenues allocated from *state* revenue allocations. The poorest fifth of communities received \$2,553 per pupil, the richest fifth, \$4,009 per student.¹⁵

Another study delved further into facilities spending nationwide, compiling data on construction projects between 1995 and 2004.¹⁶ This analysis reveals that schools serving low-income students receive far less – about half per pupil for new schools and modernization – compared with more affluent peers. Nearly 70 percent of all investment

Figure 4. Distribution of state and local facility bond revenues per pupil by wealth of California communities, 1998-2006



The split of California communities into quintiles includes the following break-points, weighted by the count of students enrolled in each district: Quintile 1 includes districts where the median household income is less than \$36,640 yearly (2000 census data); quintile 2 includes districts with median incomes between \$36,640-\$40,415; quintile 3, \$40,416-\$47,395; quintile 4, \$47,396-\$82,390; and quintile 5, median income in district exceeds \$82,390. Compiled by Brunner (2006).

went for construction costs, about 15 percent to buy land or existing buildings, and about 5 percent to instructional equipment. Just over two-fifths of the dollars financed construction of new schools; 57 percent went into the renovation of existing facilities.¹⁷

The study team, led by the Center for Cities and Schools at the University of California, Berkeley and the BEST collaborative, found that the level of investment school districts make in their facilities remains tied to the wealth of families served within districts, similar to Brunner's findings for a slightly different time span. The study found that capital spending in California lagged by about \$1,600 less per pupil, compared with the average investment across the nation's remaining 49 states (\$4,919 versus \$6,519 between 1995 and 2004).¹⁸ California districts serving the poorest children, with 75 percent or more qualifying for lunch subsidies, spent about \$3,746 per student on new or renovated facilities over the 1995-2004 period, compared with \$7,062 spent by districts with fewer than 10 percent of their pupils qualifying for free lunches.

Several urban districts are benefiting from the SAB's new, more balanced priorities. The three California zip codes with the highest per pupil spending over the last decade are situated within LAUSD, where huge projects have been under way, including the Belmont Learning Complex (topping \$400 million) and the \$95 million Central Los Angeles Middle School. Others include the new Sunnyside High School – costing more than \$50 million

– in Fresno, and the West Contra Costa Unified School District, including the city of Richmond, which has the second largest construction and renovation program behind LAUSD.

As voter support for infrastructure bonds has grown, a widening set of advocates have acquired slices of revenues for programmatic reforms, not simply for bricks and mortar. This includes those in L.A. concerned with overcrowding, year-round and multi-track schedules, as well as statewide proponents of class-size reduction. Recent state and local bonds have earmarked facilities dollars for charter schools, preschools, vocational and continuation high school efforts, and small learning communities. Here again, we see the interdependence of creative facilities design and innovative program reforms.

IV. California's Centrifugal Growth – Facility Investments in Context

The careful allocation of facilities dollars – with a keen eye on smart growth and long-term sustainability – is tough politically as the middle class flees away from urban centers. This migration continues to create strong pressure to expand young suburban communities. And the sprawling growth has sparked *new* urban centers, from Escondido to Merced to Livermore. This section reviews the underlying forces at play, powered in part by the desire of young families to find better schools and safer neighborhoods, along with the inability of cities and inner-ring suburbs to deliver them.

The commute, sprawl, and eastward migration. It is all so rational from the individual parent's point of view: leaving an urban center to find an affordable home in a safe area with good schools. Increasingly, this leads to a location far from California's ageing coastal cities. But it becomes irrational when viewed from society's common good when millions of families make the same decision to move far from an urban center, considering the shared costs of overwhelming traffic and unsustainable energy consumption. One major culprit is Americans' – and Californians' – desire for larger residential spaces in which to spread out. Consider these national statistics: 10 persons lived in American cities and towns for every one acre of habitable land in 1920; by century's end this residential density had dropped to four persons per acre, even as the nation's population doubled. Developed areas of land, including post-war suburban growth, climbed eight-fold between 1920 and 2000.¹⁹

Fanning out far and wide into low-density areas has delivered benefits, yet we also increasingly see daily costs in terms of quality of life, health, and dollars. Riverside residents, for example, jump in their cars each morning and experience the fourth longest commute time nationwide, according to census data. And as gasoline prices soar, these travel times put more pressure on family pocketbooks. Adults with long commutes display

higher blood pressure and stress, and suffer more often from headaches and chest pains, according to several studies. The so-called *walkability* of towns and cities also impacts children's health and the incidence of obesity. In 1969 more than half of all children walked or biked to school. By 2001 just 15 percent did so. This shift is attributable in large part to development patterns that place destinations – like home and school – far from each other, while failing to provide public transit or pedestrian walkways between them.²⁰

Several California cities are trying to stem the flight of their middle-class families by expanding affordable housing and improving schools in higher density developments. Bay Area governments are working with educators to improve or create new kinds of schools

Case 2: San Diego Model School Development Agency

The San Diego Model School Development (SDMSD) refers to the Joint-Powers Agreement (JPA) entered into by the San Diego Unified School District (SDUSD) and the City's Housing Authority and Redevelopment Agency. The Model School Development was designed as a redevelopment project in the densely populated, largely Hispanic, City Heights area of San Diego.

Initiated in 2001, the SDMSD arose to address the likely displacement of residents resulting from the proposed development of multiple new elementary schools in City Heights. The project's aim was to create a model for building new schools in urban neighborhoods without losing housing units. The SDMSD was designed such that the partnering entities would utilize eminent domain to take existing privately-owned residential land where the new school was planned, but to also take additional adjacent land and redevelop higher density, mixed income housing. The immediate result would be a new elementary school and a net gain in housing units for the neighborhood.

By co-locating the school with affordable housing and retail shops, the JPA aimed to advance smart growth principles. Yet, because of a variety of delays, including community opposition and a \$24 million financing gap, the housing component has stalled. Still, the district moved ahead with construction of the new Florence Griffith Joyner Elementary School, which opened in fall 2007.

School history. SDUSD needed to build four new schools in and around the City Heights neighborhood to relieve overcrowding in existing schools. However, the area had little to no vacant land, so any new school almost certainly meant a loss of much-needed affordable housing stock. Price Charities, a local philanthropic foundation that had been involved in a nearby mixed-use redevelopment project, pulled key stakeholders together in 2001. This group focused on the likely impact of the new schools on the neighborhood. The city's housing commission expressed a concern over the loss of housing. The consensus was to create an integrated design to house the new school, new housing, and retail development.

In order to operate as one entity with adequate legal authority over school construction and redevelopment, the partners formed the Joint Powers Authority. Officially created in 2002, each partner agreed to contribute \$200,000 to the annual JPA operating budget.

Design and curriculum. The only component of the SDMSD project that has come to fruition to date is the new school. Named for the Olympic track star that advocated for urban youth, Florence Griffith Joyner Elementary School accommodates 700 students in grades K-5 on a six-acre plot. The 55,666-square-foot campus includes 32 classrooms, a joint-use field for soccer and baseball, a multipurpose room, a library and media center, and energy-efficient design features.

School-community connections. The "Flo-Jo School," as it is called, provides a number of amenities to the local community, most notably outdoor fields for community use. The construction did affect the neighborhood, requiring the acquisition of 34 parcels, and the relocation of 129 households. Fortunately, 16 of the 129 households used their relocation funds to become first-time homeowners.

San Diego's bold and inventive attempt to site a new, much-needed school in an urban neighborhood and increase its housing stock provides many lessons. First is the difficulty in getting local public agencies to effectively work together on such a complex project. The JPA required legislative approval because there was no precedent for such action in California. Then, issues arose over who would take the lead and how the JPA would be adequately staffed. A full-time coordinating post was never established, and financing for the housing element in the SDMSD remains the key missing piece to this otherwise promising puzzle.

close to transport hubs to make cities more attractive to a mix of residents. Los Angeles Unified is working with the diverse community of Echo Park to build schools that draw middle-class and working families, while aiding retail development for a broader swath of city residents. Other local success stories appear in the text boxes.

Affordability and income inequality. Still, California's young parents must earn more to remain in urban centers—simply to meet basic needs of housing, safety, and quality schools. In San Francisco, for example, a household must earn 200 percent of the area median income to afford a market-rate home. One alternative is for state and local governments to help create affordable housing and better public schools in urban and inner-ring suburban neighborhoods. With weak purchasing power young families see no choice but to head for a far-out suburb.

The stagnation of middle-class earnings further speeds the exit of young families from urban centers. The real income of California's true middle class has climbed slightly over the past two decades. The median household displayed earnings of \$50,184 per year in 1989, rising just three percent to \$51,755 by 2005 (inflation-adjusted dollars).²¹ More consequential for housing markets, income disparities widened dramatically over the past four decades in California. Household income at the 25th percentile (below which fall the poorest quarter of residents) declined in real dollars by nine percent between 1969 and 1999, while at the 75th percentile real income climbed by 37 percent. Real income among the poorest tenth of all Californians declined by 14 percent during the same period.²² As California becomes more stratified in terms of income, so too do housing markets. Major swaths of Los Angeles host few middle-class families. San Francisco is increasingly home only to very affluent and quite poor residents. As this becomes institutionalized in housing markets and neighborhood distinctions, the return of young middle-class families to cities becomes even more difficult.

Uneven enrollment patterns. Student enrollment in California's K-12 system has declined, in each of the past three years (2004-2007), by about one-half of one percent.²³ But this statewide pattern obscures local shifts. Enrollment declines are steeper in California's older cities, due to the migrating middle class and the slowing of immigration from Mexico and Latin America. Public school enrollment in San Francisco has fallen by about one-sixth since 1998, as middle-class families have left the city. And LAUSD is projected to see enrollment fall by 10 percent by 2010.[□] Meanwhile enrollments are climbing in *third California* regions. This may shift again as the housing market contracts in much of the Inland Empire.

Academic Achievement. The performance of California's schools has moved upward since 1999, when state leaders approved curricular standards and a variety of

accountability measures. The recent appearance of attractive new or renovated schools is much talked about in many urban areas facing low achievement scores. But whether these encouraging gains are sufficient to hold onto young middle-class families—even as housing prices edge downward—remains an open question. These evolving conditions could boost the efficacy of coordinated facilities investments with regional sustainability in mind—if Sacramento and local planners exert stronger leadership.

V. Improving School Facilities, Boosting Student Achievement

Policy theories abound when it comes to how the quality of school facilities may contribute to stronger pupil achievement. Proposition 1D, approved by California voters in 2006, aims to relieve overcrowded schools and reduce reliance on portable classrooms. But this can only happen if districts find the space to reduce class sizes in middle and high schools under the state's new Quality Education Improvement Act (QEIA) program, targeting \$2.6 billion in new funding at urban schools. Until it recently began to pull back, the Bill and Melinda Gates Foundation spurred large districts to shrink their high schools, requiring new facilities dollars. Recent bond issues also set aside infrastructure funding for charter schools.

Across these hopeful reforms—each requiring fresh facility investments—we know little about what specific physical improvements actually boost teacher motivation or student performance. Broken air conditioning in southern California schools likely erodes classroom motivation, but do portable classrooms in middle-class communities flatten learning curves? When urban students talk of going to “ghetto schools” (see text box), this may reinforce a lack of hope and possibility. But do professional meeting rooms or better lit classrooms raise the spirits of teachers and spark their motivation? On these kinds of questions, the evidence is sketchy.

Still, a growing body of research is beginning to pinpoint infrastructure investments that do pay off. We are learning more about how new forms of school organization, including small high schools, small learning communities, or career academies may affect the motivation of teachers and students alike. These studies shed light on the human-scale mechanisms—from stronger pupil-teacher relationships to more coherent curricular alignment—that facility designs can either support or constrain.

Student voices – their reports on facilities and resources

Several focus groups were held with high school students around the state, organized by Berkeley researcher Margaret Bridges for the California Dropout Research Project. Here's a sample of what she heard –

“Our school is kinda ghetto.”

“There's not enough books... [they] are all ripped, all tagged out and written in.”

“The desks are all broken, and they're all different.”

“There's like more than one thousand kids in here, and there's only three counselors.”

“We've got some band equipment, but we have no band teacher.”

“Like, old computers that are so slow that don't work that well.”

Healthy school facilities. One recent review, conducted by Mark Schneider, director of the National Center for Education Statistics, summarizes research on how facilities variably create a comfortable and healthy learning environment for educators and students alike.²⁵ These features include air quality found inside classrooms, temperature and humidity, and the richness of natural lighting. The causal logic is that when teachers labor under sound conditions, including efficacious control over their workplace, their motivation and stability climbs. One study found that stronger principals and teachers were attracted to newer schools, or to those with better maintained facilities.²⁶

Air quality is substandard for one in five schools, affecting more than nine million students nationwide, according to the U.S. General Accounting Office.²⁷ Poor ventilation in schools, accumulation of dust, and the growth of mold in ceilings and walls—found mostly in older, urban schools—can lead to respiratory infections, headaches, and sleepiness, according to the Environmental Protection Agency.²⁸ And poor air quality has been linked to higher student absenteeism, often due to asthma and respiratory illness.²⁹

The temperature and humidity found in classrooms also affects children's health and motivation. One study of Florida classrooms found a high incidence of mold, triggering allergic symptoms.³⁰ Another study conducted in Chicago and Washington D.C. found that about one-quarter of all teachers were in classrooms with high levels of bacteria that led to respiratory problems for teachers and students.³¹

Several studies have found that students attending school in newer facilities outperform similar pupils in ageing schools, even when controlling for socioeconomic differences.³² Some investigators infer that students are more engaged or that teachers felt more efficacious working in aesthetically pleasing facilities. Still the evidence remains sketchy and the magnitude of these differences, to date, are modest at best.

School size – is small beautiful? School size has come to preoccupy many discussions of education reform and innovative design, postulating that student engagement and pedagogical quality will rise as schools shrink. For example, major facilities investments are being made in Los Angeles and Oakland to create small high schools or small learning communities within larger schools.

Early studies found that smaller schools, especially high schools, provided more “intimate learning communities where students are well-known... and adults who care about them.”³³ Small schools, ranging between 150 and 400 students, were found to be motivating for teachers who formed stronger relationships with students, nurtured by these more human-scale organizations. Parent participation was reportedly stronger in small schools, compared to regular comprehensive schools.³⁴ These factors resulted in

safer schools, stronger achievement, and higher graduation rates, according to these initial studies.³⁵

But as small schools went big-time, it became more difficult to replicate early successes on a grander scale. The Gates Foundation has poured millions of dollars into the creation of small public high schools throughout the country, along with allied reform organizations. But initial studies of the Gates small schools, most situated in urban centers, are yielding mixed findings. Stronger relationships are reported by students and teachers; teachers report greater participation in school-wide planning; and small gains in graduation rates have been observed in Chicago and New York.³⁶ But test scores have failed to rise and implementation problems have been striking, especially when large schools are broken into smaller clusters. While the methods of these second-generation evaluations have been uneven, a broader question emerges around the viability of “fixing” urban schools without addressing systemic issues that shape the skills and capacities that urban students bring to high school. These systemic issues are not only a function of school quality but also of the neighborhoods and cities in which they live.³⁷ The health of neighborhoods, the character of school facilities, and student engagement go hand in hand.

The positive benefits inferred by Gates Foundation-funded evaluators at times stem from questionable research designs. Comparison schools have been selected in illogical ways, sometimes comparing the features and “effects” of small schools to district-wide averages. The likelihood of selection bias, in terms of which parents express demand for small schools, is not taken into account by Gates evaluators. Overall we are learning little about how the families expressing demand for small schools, among lower-income or middle-class communities, differ from parents who simply select neighborhood schools.³⁸

When it comes to having fewer students in the classroom, the evidence is less ambiguous. One of the biggest shocks to California schools and their facilities stemmed from Gov. Pete Wilson’s 1996 decision to quickly reduce class sizes to 20 children in kindergarten through grade three. Seen as a cheaper way to comply with the requirements, portables sprouted on campuses across California, often being placed on outdoor play space. A similar shock is about to occur in the state’s poorest performing schools, under the \$2.6 billion QEIA initiative which requires smaller classes in the upper grades. We know from the carefully studied Tennessee class-size experiment that small can be beautiful when focused on children in low-income communities and class-size is capped at 15 students.³⁹ But California’s unfocused uniform class-size efforts have yielded few discernible benefits for children.⁴⁰ That said, as local districts begin implementing QEIA in selected schools, facilities dollars surely will be used to meet its class-size

Case 3: Castlemont Community of Small Schools — Oakland

Castlemont, once the largest high school in Oakland Unified School District (OUSD), faced many typical urban school woes: low student attendance and high rates of violence. As part of Oakland's major school reform efforts beginning in 2004, Castlemont was separated into three smaller schools: Castlemont Leadership Preparatory School, Castlemont Business and Information Technology School, and the East Oakland School of the Arts. These three schools now form the Castlemont Community of Small Schools (CCSS). Housed on the same campus, each school has a distinct academic focus, separate facility, and teaching faculty.

The separation of one large campus into three smaller schools represents an opportunity to provide more individually tailored teaching for Oakland students, while utilizing the existing infrastructure. For two of the three small schools, the facilities are illustrative of their functions, incorporating elements of their academic focus into their built environment. The schools share the cafeteria, library, college counseling, auditorium, sports facilities, security officers, and gym teachers. The City of Oakland and Alameda County have combined funds to support social services located adjacent to the campuses.

School history. CCSS is part of a district-wide movement supported by a number of non-profit organizations. The Oakland Community Organization and the Bay Area Coalition of Equitable Schools both provided financial support and capacity building support, including full-time instructional coaches. The initiative was originally funded by a district Smaller Learning Communities implementation grant, support by the Gates Foundation, and a city bond measure.

Design and Curriculum — Three Small Learning Communities

East Oakland School of the Arts. This school is located in the former Castlemont shop building. During the transition, the shop was gutted and rebuilt. The building has an art studio, dance studio, music rooms, technical music rooms, and an exhibit space. The space has a distinct feel to it, creating the impression that something other than traditional high school happens there.

Castlemont Business and Information Technology School. This school specializes in business and technology and can be seen through some aspects of the facilities, including workspaces hosting many computers. The school is supported by both the Gates Foundation and by the New Tech Foundation in Napa. Teachers can reserve wireless carts and have personal LCD projectors and laptops. The chemistry lab has been designed and built especially for a high school chemistry class.

Leadership Prep. This learning community looks most like a traditional school. The focus is on the humanities, liberal arts, and leadership. The built environment of Leadership Prep is similar to a typical public high school, the classrooms have desks in rows, whiteboards on the walls, and large teacher desks in the corners.

School-community connections. In keeping with the smart growth principles of connecting different land uses and the communities in which they are situated, Youth UpRising has been co-located with CCSS to serve neighborhood community needs. Funded by the City of Oakland and Alameda County in response to previously high levels of racial tension and violence, Youth UpRising offers many programs, including youth leadership and community building, media, material arts classes, and education services, as well as a youth-run full-service restaurant and catering business.

reduction mandate. The interplay between smaller classes and motivating facilities—focused on schools in poor communities—may yield stronger benefits.

Green design. Several states and school districts, including Los Angeles Unified, are building schools that reflect green-building techniques, creating fresher learning environments.⁴¹ Benefits include energy savings, better indoor air quality, and improved lighting. Some new schools draw on solar or wind power. More subtle changes include orienting buildings toward the sun to maximize natural light and to moderate temperature. Such design innovations yield real cost-savings over time.⁴²

Schools that link students to communities. Parents and youths alike are drawn to neighborhoods where there is a sense of place and belonging. New kinds of high schools — situated close to internship opportunities in the broader community — can advance feelings of connection and responsibility. Examples include the recently built Orthopaedic Hospital Magnet High School in Los Angeles, and the AgCenter program, located near Fresno in the City of Clovis (see text box).

A major impediment to such innovation is the all-too-common chasm between program reformers and school facility planners, a divide that often exists even within large school bureaucracies. Los Angeles Unified

has made tremendous strides in bridging this gap by assigning a key educator, the staffer who oversees small learning communities, to come together with facility designers. But inventive district leadership is required to demonstrate how a school's built environment can advance more rewarding social relationships and pedagogies, from collaborative spaces for teachers to adult-like roles and service opportunities for students.

Engaging families, integrated communities. Many families remain committed to their city when they experience the amenities that stem from cultural variety, affordability, and diversified job options. California enjoys many such communities, integrated by social class and ethnicity, from Echo Park in L.A. to North Beach and Chinatown in San Francisco. The state's expanding Latino middle class yields additional diversity, including North Hollywood and the Pomona area east of Los Angeles.

Inventive schools embedded in, not separated from, urban neighborhoods can build school and community ties. Human-scale charter schools already do this in many California cities, as they populate existing buildings or storefronts. They contribute to *densification* of populations and draw on existing infrastructure, facing lower capital and downstream operating costs. Yet the entrenched rules governing the construction of regular schools largely ignores these lessons from the innovative designs of many charter schools.

VI. Conclusions – New Schools for Sustainable Communities

California holds a golden opportunity to invest in higher quality, inventive forms of schooling. This opportunity could benefit not only students and teachers, but could play an integral role in the development of more sustainable communities across the state. How the SAB and local educators distribute the \$82 billion in voter-approved revenues will reveal whether they will help build sustainable communities or further subsidize suburban sprawl. Energy prices continue to rise, and the tentacles of freeways, ever growing longer, are worsening traffic congestion and pollution. The economic and cultural vibrancy of cities and ageing suburbs stagnate as families migrate to far-out suburbs. Leadership is sorely needed.

So, how can state policy makers and local school leaders join with city planners, to work together to build schools more mindfully?

- *Align facility dollars with organizational priorities.* Sacramento's allocation of state school facility dollars should be aligned with the goals of building schools that display stronger performance, rooted in more professional workplaces for teachers and stronger engagement with students. In turn, new and modernized schools will attract young families within cities and revitalize close-in suburbs.

- *Start with principles of sustainability and smart growth.* One specific way of building schools mindfully is to leave “big box” schools behind. Charter and magnet schools have demonstrated that traditional size requirements for classroom blocks and inside classrooms are not necessary. These rules were developed when land was cheap and sprawl was snugly attached to the American Dream. But smaller schools and smaller learning communities, integrated into city blocks and mixed-use shops, are energy efficient and can strengthen a community’s social architecture.

School size is promising policy lever that may lift students in a variety of ways. Many states no longer enforce acreage or square-footage requirements, yet California has retained minimum recommendations for both, which continue to serve as the default, albeit inefficient, standard.⁴³ School planning, construction, and investment policies should be reviewed with any eye toward building schools that serve densely population and suburban communities.

- *Conduct full cost accounting.* The state could encourage school districts to fully cost-out the renovation and expansion of existing schools, rather than building new facilities. This could save operating costs by drawing on existing infrastructure and making densely populated communities more attractive. In California, a new school design is typically pursued if the cost of renovating an existing school exceeds 60 percent of the replacement cost. States like Minnesota, however, enforce an 80 percent rule, pressing school districts to carefully estimate capital costs and ongoing operational savings associated with renovating an existing school.
- *Equitably distribute bond revenues.* The SAB has displayed progress in more fairly distributing bond revenues among school districts. Yet the SAB still fails to report on what kinds of school districts benefit from its distribution procedures; nor can policy makers, education groups, or the public easily learn which families and demographic groups benefit from SAB decisions. It has taken one court case and private funding to even tally which districts gain and which lose out.
- *Outcome evaluation is sorely needed.* Despite California’s massive, ongoing school facilities investment we know little about what pays off in terms of boosting teacher effectiveness or student achievement. No outcome analysis of the public’s \$82 billion investment is even slated to be conducted. Education interest groups, including forceful advocates of charter schools, preschools, smaller class sizes, have succeeded in winning set-asides in recent facility bond initiatives, but they have shown less enthusiasm for independent studies of the actual effects of their favored reforms. LAUSD, however, is supporting a long-term assessment of its ambitious building program.

- *Incentivize coordinated planning.* More united and participatory planning is required to build more effective schools that foster and strengthen sustainable communities.⁴⁴ State policy makers, education leaders, and urban planners should come together to: (1) clarify how facility investments can help to attract and retain families to cities and inner-ring suburbs; (2) remove incentives for unrestrained sprawl, still embedded in the distribution of school facility revenues; and (3) determine which facility improvements are raising teacher effectiveness and student achievement, as well as improving local communities.

In short, California can use its \$82 billion investment to more mindfully build and renovate schools to enrich educational quality and the sustainability of housing patterns and local economies. Or, we may squander this historic opportunity, stifling inventive forms of school organization and reinforcing the state's centrifugal, unsustainable sprawl. As the state struggles with traffic, rising gas prices, unaffordable housing, and uneven schools, Californians should not let this opportunity slip away.

Case 4: McFarlane-Coffman Agriculture Center – Clovis

The McFarlane-Coffman Agriculture Center (AgCenter) is one of three school facilities co-located at Clovis East, a cluster of educational facilities that includes a middle school, a high school, and an agricultural learning facility. Clovis East is part of Clovis Unified School District, a medium-sized district northeast of Fresno.

Students from the high school can elect to take a number of courses at the AgCenter to fulfill course requirements for admission to the University of California, including agriculture science, botany, veterinary science, engineering, and AP environmental science. Students in grades 11 and 12 can choose agriculture as a career path, which includes a jobsite placement through the Federal Regional Occupation Program (ROP). With a staff of six teachers, the AgCenter serves 1,000-plus students throughout the year in classes on-site, with 40-50 students placed in ROP jobsites.

School history. The AgCenter began in 1933 as an adjunct to Clovis High School. It long operated as a department in the traditional high school, using two portable classrooms and a four-acre farm. In 1999, when the school was slated for closure, two local school board members and Future Farmers of America (FFA) degree recipients, Bill McFarlane and John Coffman, decided to save the agricultural program. Their efforts resulted in a school board bond for \$5 million, a federal bond for the same amount, and an extra \$1 million from various donors.

Through the ROP, the school receives federal funding. The state provides both ADA as well as an annual Agriculture Incentive Grant of \$35,000. The district matches that grant, as well as providing salaries for the teachers. The school raises an additional \$30,000 each year by hosting "Ag Boosters," when staff and students sell plants, trees, and harvested fruit.

Design and curriculum. The two main buildings have traditional classrooms. Connected to one is a large metal and wood shop. Here students take welding and construction, learning to cut metal with lasers and build and fix farm equipment and irrigation systems. Adjacent to the main building is the barn; on the other end sits the 20-acre farm. The school has working pig and goat barns where students house and raise animals, purchased through a school loan system. The farm serves the community by selling nursery products such as plants and trees. The ability of the AgCenter to link student educational experiences and the local job market is part of what makes the facility so unique.

School-community connections. Seeking to prepare students to enter the agricultural industry with training, experience, and an academic background, the school's connection to surrounding uses is more economic than physical. Nonetheless, it serves the spirit of smart growth principles by fostering a sense of place and building on local character.

Students gain practical experience and serve the community by producing agricultural goods and services. While most of the current classes are academic, the teachers at the AgCenter believe that they are capturing students at risk of dropping out by offering a career-oriented alternative to a college prep curriculum. With training from the AgCenter, many graduates directly enter the workforce. Others enroll at the two-year program at the local community college to become certified in agriculture, engineering, or welding.

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³³ Schneider, M. (2002a). Do school facilities affect academic outcomes? Washington, D.C.: National Clearinghouse for Educational Facilities, p.11.

³⁴ For example, see Lee, V., & Loeb, S. (2000). School size in Chicago elementary schools: Effects on teachers' attitudes and students' achievement. *American Educational Research Journal* 37: 3-31. See also Schneider (2002b).

³⁵ Raywid, M. (1999). Current literature on small schools. ERIC retrieval system: <http://www.ael.org/eric/digests/edorc988.html>.

³⁶ Fuller, B. (2009). Policy and place: Learning from decentralized reforms. In D. Plank & B. Schneider, (Eds.), *Handbook of education policy research*. Washington, DC: American Education Research Association.

³⁷ Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the black-white achievement gap*. Washington DC: Economic Policy Institute.

³⁸ For a recent review on the effects and mediating mechanisms possibly operating in small schools, see Brewer, D. (2008). The questionable benefits of smaller schools (manuscript).

³⁹ Mosteller, F. (1995). The Tennessee study of class size in the early grades. *Future of Children* 5: 113-127.

⁴⁰ Stasz, C., & Stecher, B. (2000). Teaching mathematics and language arts in reduced sized and non-reduced sized classrooms. *Educational Evaluation and Policy Analysis* 22: 313-329. See also Hanushek, E. (1997). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis* 19: 141-164.

⁴¹ Shorr, P. (2004). It's so easy being green. *American School Board Journal* 19: 22-25.

⁴² A number of entities exist to support green school building endeavors. The Green Building Council, based in Washington, D.C., recently established the LEED Green Building Rating System, which guides architects and facilities planners. California has set in place the Collaborative for High Performance Schools (CHPS) that offers information and incentives to districts that design environmentally friendly schools.

⁴³ Council for Educational Facility Planning (2004). *Creating connections: The CEFPI guide for educational facility planning*. Scottsdale, AZ: Council of Educational Facility Planners International.

⁴⁴ Vincent, J. (2006). Public schools as public infrastructure: Roles for planning researchers. *Journal of Planning Education and Research* 25: 433-437.